UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,849	03/22/2004	David E. Ludwig	ISC-126	1713

7590 09/10/2007

W. Eric Boyd, Esq.
Irvine Sensors Corp.
Suite 108
3001 Redhill Ave., Bldg.3
Costa Mesa, CA 92626

EXAMINER	
CHOWDHURY, AFROZA Y	
ART UNIT	**PAPER NUMBER**
2629	

MAIL DATE	DELIVERY MODE
09/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,849	LUDWIG ET AL.	
	Examiner	Art Unit	
	Afroza Y. Chowdhury	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment received on June 29, 2007 has been entered. Claims 1-11 are currently pending. Applicant's newly added claims and arguments are addressed herein below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Stettner et al.** (US Patent No. 6414746) in view of **Schmitz et al.** (US Patent 4,659,931).

As to claim 1, Stettner et al. discloses an imaging device comprised of: A photon source (col. 2, line 66 – col. 3, line 3) for generating a photon reflection from a target (col. 3, lines 41-47, col. 5, line 47-49),

a detector array (fig. 2(6, 7) for producing a detector array output signal in response to said photon reflection (fig. 2, 4, col. 3, lines 55-60, col. 5, 53-57),

a multilayer processing module for the receiving of said detector array output signal (fig. 2, col. 3, lines 47-54),

said processing module comprised of at least two stacked layers wherein each of said at least two stacked layers are comprised of at least one integrated circuit chip for the processing of said received detector array output signal (col. 2, lines 53-58).

Stettner et al. does not explicitly teach a detector array bonded to a lateral surface of said processing module and substantially perpendicular to stacked layers.

Schmitz et al. teaches a detector array (fig. 1(15), col. 4, lines 47-50) bonded to a lateral surface of said processing module and substantially perpendicular to at least two stacked layers (fig. 3(24)) and wherein said detector array is electrically connected (fig. 6(49) to at least one integrated circuit chip via a plurality of electrical connections disposed on lateral surface of a processing module (col. 3, lines 20-39, col. 7, lines 41-56).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to combine multi-layer detector array module of Schmitz et al. with the image device of Stettner et al to make a 3D imaging device in order to optimize space by orienting the detector array perpendicular to the plane of the stacked IC layers..

As to claim 3, Stettner et al. teaches an imaging device comprising circuit means for converting said processed detector array output signal into an electronic image (col. 3, lines 10-16, 41-47).

As to claim 4, Stettner et al. discloses an imaging device further comprising circuit means for converting said processed detector array output signal into a three-dimensional electronic image (col. 3, lines 10-16, 41-47, abstract).

As to claim 5, Stettner et al. teaches an imaging device wherein said photon source is a laser (col. 2, lines 66-67, col. 3, lines 1-3).

As to claim 6, Stettner et al. discloses an imaging device wherein said photon source is a pulsed laser (col. 3, lines 41-54, col. 5, lines 47-49).

As to claim 7, Stettner et al. teaches an imaging device further comprising beam-shaping optics for the focusing of said photon source upon said target (col. 3, lines 47-54, col. 5, lines 51-53).

As to claim 8, Stettner et al. discloses an imaging device comprising collection optics for the focussing of said reflected photons upon said detector array (col. 5, line 66 – col. 6, line 8).

As to claim 9, Stettner et al. teaches an imaging device wherein said detector array is an InGaAs detector array (col. 11, lines 1-4).

4. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Stettner et al.** (US Patent No. 6414746) **Schmitz et al.** (US Patent 4,659,931) and in further view of **Cronin et al.** (US Patent No. 5925924).

As to claim 2 and 10, Stettner et al. (as modified by Schmitz et al.) discloses 3D imaging laser radar where the imaging device has a detector as an external electronic device (fig. 4) and conducting bumps (col. 3, lines 55-63).

Stettner et al. (as modified by Schmitz et al.) does not explicitly teach T-connect.

Cronin teaches T-connect structure (col. 2, lines 5-11, col.10, lines43-48).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to combine Cronin's concept of T-connect with the image device of Stettner et al. (as modified by Schmitz et al.) because this will allow to provide an imaging device to make a connection between a processing module and a detector.

5. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Stettner et al.** (US Patent No. 6414746) **Schmitz et al.** (US Patent 4,659,931) and in further view of **Halmos** (US Patent No. 6522396).

As to claim 8, Stettner et al. (as modified by Schmitz et al.) teaches detector array for producing output signal in response to said photon reflection (fig. 2, 4, col. 3, lines 55-60, col. 5, 53-57). Stettner et al. (as modified by Schmitz et al.) teaches the

use of a lens (etched into detector substrate) for the focusing of reflected photons only if the detector is incorporated into the laser radar processor (col. 5, line 66 – col. 6, line 8).

Halmos explicitly teaches 3D LADAR system where a lens (outside the detector array) used for focusing reflected photons upon said detector array (fig. 1(28), col. 23-27).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to combine Halmos's 3D LADAR system with the image device of Stettner et al. (as modified by Schmitz et al.) to make an imaging device comprising a lens for focusing of reflected photons upon a detector array in order to capture reflections from the entire target area.

As to claim 11, Stettner et al. (as modified by Schmitz et al.) does not explicitly teach the use of comparator in order to compare signal to a threshold value.

Halmos discloses detector (col. 3, lines 27-29) output signal sent through preamplifier (fig. 2, col. 4, lines 23-25) is compared to a predetermined threshold (col. 3, lines 51-59) using a comparator (fig. 3, col. 5, lines 28-36).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to combine Halmos's comparator with the image device of Stettner et al. (as modified by Schmitz et al.) in order to achieve a predetermined threshold for any particular application.

Response to Arguments

6. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-2600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

8/29/2007

AMARE MENGISTU
SUPERVISORY PATENT EXAMINER